DESCRIPTION

"Seat for Amusement Apparatus"

FIELD OF THE INVENTION

This invention relates to a seat for amusement apparatus.

BACKGROUND OF THE INVENTION

In amusement apparatus the user or passenger is generally seated on a suitable seat. For reasons of safety the seat is often provided with means for immobilising the user on the support of the seat in such a way that the user is firmly held in his seat despite the movements performed by the amusement apparatus.

A seat for amusement apparatus comprising a fixed back and a fork hinged on the back above the user is for example known. The fork descends and immobilises the user's shoulders and chest against the fixed back.

A seat having this configuration immobilises the user on the support of the seat, ensuring his safety, but does not allow the spectator to make movements of any kind, thus for example diminishing the ride sensation provided by the amusement apparatus, or one of the sensations which it is attempted to generate in order to render the amusement apparatus exciting.

The need to construct amusement apparatus which can

generate new sensations for users has always been felt within the sector. This requirement may for example be satisfied through the design of new seats which allow the user to adopt new positions and attitudes with respect to the apparatus.

The problem underlying this invention is that of providing a seat for amusement apparatus which has structural and functional characteristics such as to distinguish it from the known art and to allow the user to adopt new positions on the apparatus.

SUMMARY OF THE INVENTION

This problem is resolved through a seat for amusement apparatus of the type specified above according to claim 1.

BRIEF DESCRIPTION OF THE DRAWINGS

Other advantages and characteristics of the present invention will become clear from the following detailed description which is given with reference to the appended drawings which are provided purely by way of non-limiting example and in which:

Figure 1 illustrates a perspective view of the seat according to this invention,

Figure 2 illustrates a side view of the seat in Figure 1,

Figure 3 illustrates a frontal view of the seat in

Figure 1,

Figure 4 illustrates a rear view of the seat in Figure 1,

Figure 5 illustrates a side view of the seat in Figure 1 illustrating the position of the user, whether a child or an adult,

Figure 6 illustrates a side view of the seat in Figure 1,

Figure 7 illustrates a view of the seat in Figure 1 from above in which some components are in cross-section along the line VII-VII in Figure 6,

Figure 8 illustrates a view of a detail in Figure 7 in cross-section along the line VIII - VIII,

Figure 9 illustrates a view of a detail in Figure 7 in cross-section along the line IX-IX,

Figure 10 illustrates a view of a detail in Figure 7 in cross-section along the line X-X,

Figure 11 illustrates a side view of amusement apparatus comprising a seat according to this invention,

Figure 12 illustrates a view of the amusement apparatus in Figure 11 from above.

DETAILED DESCRIPTION OF THE INVENTION

With reference to the abovementioned figures, a seat for amusement apparatus is indicated as a whole by 10.

As the appended figures illustrate, seat 10 is advantageously constructed in such a way that the passenger or user sits astride the same, adopting a posture similar to that adopted by motorcyclists.

In addition to this the structure of the seat is such as to leave the passenger's shoulders free, securing him in the vicinity of the chest or abdomen.

According to a possible embodiment seat 10 comprises a support 12 supported by a frame 14. For example support 12 is in the shape of a saddle or motor vehicle seat so as to receive the passenger sitting astride the same.

According to a possible embodiment frame 14 is for example constructed of a set of tubular members, although other embodiments such as compact and boxed structures are possible.

Figure 6 illustrates an embodiment of frame 14 in which frontal supporting member 16 is fixed to a floor 18. Frontal supporting member 16 extends from floor 18 preferably in a direction which is inclined at an angle of α with respect to the floor.

The extremity of the frontal supporting member opposite floor 18 ends in a portion 16a which is preferably inclined at an angle β with respect to the frontal supporting member. Portion 16a is suitable for

supporting a cushion to support the passenger, which is for example manufactured from polyurethane.

Two lateral supporting members 20 extend from frontal supporting member 16 and floor 18. Further supporting members 22 extend in a direction substantially perpendicular to floor 18 and constitute a support for supporting members 24 for support 12.

A cover or casing 26 completely encloses frame 14 of seat 10.

28 indicates means for immobilising the user on support 12 of the seat. These immobilising means advantageously comprise at least one support 30 mounted at the end of frontal supporting member 16 in the vicinity of portion 16a. Support 30 is located frontally with respect to the user and according to a possible embodiment has a shape such as to wrap round the passenger both at the front and at the side. For example support 30 comprises a central portion 30a which may comprise a supporting member for a frontal portion of the user, for example the chest in the case of children or the abdomen in the case of adults. Advantageously two side portions 30b, which are preferably arched, are also provided and extend from central portion 30a and have a configuration such as to surround the passenger laterally.

Immobilising means 28 advantageously also comprise opposing means 32 suitable for acting against the user's back. According to a possible embodiment the opposing means can move between an open position and a closed position in which it abuts against the user's back. Figure 5 illustrates three positions of the opposing means corresponding to the open position (lowered position illustrated by a dashed line), the closed position (raised position illustrated by the unbroken line) and a position intermediate between the open position and the closed position (illustrated by a dashed line).

According to a possible embodiment, which is for example illustrated in the figures, opposing means 32 comprises an arm 34 which can move between a lowered position in which the user can sit down on the support of the seat and a raised position in which one end of the arm abuts against the user's back (Figure 5). Preferably arm 34 is suitable for rotating with respect to support 12 and is operatively associated with a rotating actuator 36. According to possible embodiments actuator 36 may be of the pneumatic, hydraulic or electrical type.

According to a possible embodiment one end of arm 34 is keyed onto a splined shaft 38 mounted on frame 14.

A gear 40 is suitable for being caused to rotate by rotating actuator 36 and transmit the motion to splined shaft 38 (Figures 7 and 8).

According to a possible embodiment arm 34 is operatively associated with a cam 42 and a microswitch 44 preferably through splined shaft 38 (Figures 7 and 8) with the function of checking that the opposing means has passed beyond a particular vertical position so as to ensure that the passenger is held.

According to a possible embodiment cam 42 has a first circular profile which extends over approximately three quarters of the total perimeter of the cam and a second circular profile of smaller radius than the first circular profile which extends over approximately one quarter of the total perimeter of the cam. The two profiles are suitably connected.

According to a possible embodiment microswitch 44 comprises a runner 46 which is hinged to a body of the microswitch and is provided at one end with a small wheel 48 which rotates with respect to the runner and can move over the profile of cam 42.

According to a possible embodiment arm 34 is operatively associated with means for immobilising it in the raised position, for example comprising a rack 50 hinged on frame 14. In particular the rack is associated

with a toothed wheel 52 keyed onto splined shaft 38 to mechanically immobilise the opposing means in the raised position when it has reached the position in which it supports the passenger (Figures 7 and 10). Rack 50 and toothed wheel 52 therefore comprise immobilising means of the mechanical type to prevent movement of the opposing means either as a result of the movements of the amusement apparatus or the thrust of the passenger against the opposing means, preventing the passenger from being thrown out of the seat.

According to a possible embodiment rack 50 is kept in contact with and in mesh with toothed wheel 52, activated for example by a single-action pneumatic piston. In particular rack 50 is held against toothed wheel 52 by resilient means which can be disabled, for example pneumatically, during the return movement of the opposing means.

According to a possible embodiment, one end 54 of arm 34 can wrap partly round the user's back.

The manner in which the seat for amusement apparatus as described above is used is described below.

The user, whether a child or an adult, sits astride support 12 substantially as on a motor cycle and rests his chest or abdomen against support 30.

On the command of an operator actuator 36 causes

splined shaft 38 and therefore arm 34 to rotate until the latter abuts against the user's back. Cam 42 and microswitch 44 constitute a control for the position of arm 34. In particular the profile of cam 42 moves with respect to small wheel 48 causing runner 46 to rotate about the hinge point (the dashed and unbroken line in Figure 9).

Rack 50 meshes with toothed wheel 52 and keeps the arm immobilised in the raised position thus opposing the movements of the amusement apparatus and the thrust from the passenger, thus preventing the passenger from leaving the seat.

To release the passenger single-acting piston 53 compresses the spring which maintains contact between rack 50 and toothed wheel 52 while actuator 36 causes arm 34 to make its return travel.

A possible embodiment of apparatus provided with seats according to this invention is illustrated in Figures 11 and 12. 100 indicates the apparatus as a whole comprising at least one track 102 on which a platform 104 can move. Platform 104 is mounted in such a way that it can rotate about an axis, for example an axis substantially perpendicular to the plane defined by the platform.

At least one set of seats 10 is mounted on a

substantially perimetral portion of the platform, preferably in such a way that the user faces outwards from the platform.

The motion to which the user is subjected is the combination of the rotatory motion and the oscillatory motion of the platform. Provision may also be made for movement of the seats with respect to the platform.

From what has been stated above it will be appreciated that the provision of a seat for amusement apparatus according to this invention makes it possible to satisfy the requirement for obtaining a different position of the user on the apparatus, changing the sensations provoked in the user without the need for any drastic modification in the structure of the apparatus.

In particular the seat according to this invention leaves the user's shoulders free and allows him to adopt a position similar to that adopted by motorcyclists.

It is clear that variants and/or additions may be provided to what has been described and illustrated above.

Regardless of the embodiment, provision is advantageously made for the opposing means to rotate or move laterally with respect to the support.

According to a possible embodiment, the motion of the opposing means, and in particular the arm, can be

brought about by means other than those described and illustrated. For example arm 34 may have a substantially circular shape with one toothed side suitable for meshing with a toothed wheel driven by the actuator.

As an alternative to what is illustrated in the appended figures, the frontal support may be movably mounted on the seat so that its position can be adjusted according to the user's dimensions. In this case a continuous adjustment or a stepwise adjustment may be provided, or movement may be permitted to assist access from the side.

According to a possible embodiment the seat may be substantially reversed with the provision of a movable frontal support and a fixed rear support. In each case the passenger sits astride the seat with his shoulders free. The frontal support may rotate or move linearly.

In order to satisfy specific contingent requirements a person skilled in the art may make many modifications, adaptations and substitutions of components with other functional equivalents to the preferred embodiment of the seat for amusement apparatus described above without however going beyond the scope of the following claims.